

## CLAIMS

1. An information processing apparatus  
comprising:

5 a code reception unit adapted to receive a  
personal identification code input by a user;

a random number generation unit adapted to  
generate a random number;

10 a random number encryption unit adapted to  
encrypt the random number generated by said random  
number generation unit, by using the personal  
identification code or a key based on the personal  
identification code as an encryption key;

15 a code conversion unit adapted to convert the  
received personal identification code by using a  
predetermined function; and

a print data encryption unit adapted to encrypt  
print data by using the random number as an  
encryption key.

20 2. An information processing apparatus  
according to Claim 1, wherein said code conversion  
unit converts the personal identification code by  
using a one-way function.

3. An information processing apparatus  
according to Claim 2, wherein said code conversion  
25 unit generates a hash value of the personal  
identification code.

4. An information processing apparatus

according to Claim 1, further comprising a transmission unit adapted to transmit the encrypted random number, the converted personal identification code and the encrypted print data.

5           5. A print control apparatus comprising:

          a reception unit adapted to receive an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;

10           a code reception unit adapted to receive a second personal identification code input by a user;

          a code conversion unit adapted to convert the received second personal identification code by using a predetermined function;

15           a judgment unit adapted to judge whether or not the converted first personal identification code is the same as the converted second personal identification code;

          a random number decryption unit adapted to, in  
20 a case where the converted first and second personal identification codes are the same, decrypt the encrypted random number by using the second personal identification code or a key based on the second personal identification code as a decryption key; and

25           a print data decryption unit adapted to, in the case where the converted first and second personal identification codes are the same, decrypt the

encrypted print data by using the decrypted random number as a decryption key.

6. A print control apparatus according to Claim 5, wherein said code conversion unit converts the second personal identification code by using a one-way function.

7. A print control apparatus according to Claim 6, wherein said code conversion unit generates a hash value of the second personal identification code.

10 8. A print control apparatus according to Claim 5, further comprising a print processing unit adapted to execute a print process of the decrypted print data.

9. A print control system which includes an information processing apparatus and a print control apparatus, wherein

15 said information processing apparatus comprises:

a first code reception unit adapted to receive a first personal identification code input by a user;

a random number generation unit adapted to generate a random number;

a random number encryption unit adapted to encrypt the generated random number by using the first personal identification code or a key based on the first personal identification code as an

encryption key;

a first code conversion unit adapted to convert the received first personal identification code by using a predetermined function;

5 a print data encryption unit adapted to encrypt print data by using the random number as an encryption key; and

a transmission unit adapted to transmit the encrypted random number, the converted first  
10 personal identification code and the encrypted print data to said print control apparatus, and

said print control apparatus comprises:

a reception unit adapted to receive the encrypted random number, the converted first personal  
15 identification code and the encrypted print data from said information processing apparatus;

a second code reception unit adapted to receive a second personal identification code input by the user;

20 a second code conversion unit adapted to convert the received second personal identification code by using a predetermined function;

a judgment unit adapted to judge whether or not the first personal identification code  
25 converted by said first code conversion unit is the same as the second personal identification code converted by said second code conversion unit;

a random number decryption unit adapted to,  
in a case where said judgment unit judges that the  
converted first and second personal identification  
codes are the same, decrypt the encrypted random  
5 number by using the second personal identification  
code or a key based on the second personal  
identification code as a decryption key; and

a print data decryption unit adapted to,  
in the case where said judgment unit judges that the  
10 converted first and second personal identification  
codes are the same, decrypt the encrypted print data  
by using the decrypted random number as a decryption  
key.

10. A print control system according to Claim 9,  
15 wherein said print control apparatus further  
comprises a print processing unit adapted to execute  
a print process of the decrypted print data.

11. An information processing method comprising  
the steps of:

20 receiving a personal identification code input  
by a user;

generating a random number;

encrypting the generated random number by using  
the personal identification code or a key based on  
25 the personal identification code as an encryption  
key;

converting the personal identification code by

using a predetermined function; and  
encrypting print data by using the random  
number as an encryption key.

12. An information processing method according  
5 to Claim 11, further comprising the step of  
transmitting the encrypted random number, the  
converted personal identification code and the  
encrypted print data.

13. A print control method comprising the steps  
10 of:

receiving an encrypted random number, a first  
personal identification code subjected to  
predetermined conversion, and encrypted print data;

receiving a second personal identification code  
15 input by a user;

converting the received second personal  
identification code by using a predetermined  
function;

judging whether or not the converted first  
20 personal identification code is the same as the  
converted second personal identification code;

in a case where it is judged that the converted  
first and second personal identification codes are  
the same, decrypting the encrypted random number by  
25 using the second personal identification code or a  
key based on the second personal identification code  
as a decryption key; and

in the case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted print data by using the decrypted random number as a  
5 decryption key.

14. A print control method according to Claim 13, further comprising the step of executing a print process of the decrypted print data.

15. A computer program for causing a computer  
10 to execute an information processing method, comprising:

a code reception module for receiving a personal identification code input by a user;

15 a random number generation module for generating a random number;

a random number encryption module for encrypting the generated random number by using the personal identification code or a key based on the personal identification code as an encryption key;

20 a code conversion module for converting the received personal identification code by using a predetermined function; and

a print data encryption module for encrypting print data by using the random number as an  
25 encryption key.

16. A computer program for causing a computer to execute a print control method, comprising:

a reception module for receiving an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;

5       a code reception module for receiving a second personal identification code input by a user;

          a code conversion module for converting the received second personal identification code by using a predetermined function;

10       a judgment module for judging whether or not the converted first personal identification code is the same as the converted second personal identification code;

          a random number decryption module for, in a  
15 case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted random number by using the second personal identification code or a key based on the second personal identification code as a  
20 decryption key; and

          a print data decryption module for, in the case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted print data by using the  
25 decrypted random number as a decryption key.

17. A computer-readable storage medium which stores a computer program for causing a computer to



execute an information processing method, said computer program comprising:

a code reception module for receiving a personal identification code input by a user;

5 a random number generation module for generating a random number;

a random number encryption module for encrypting the generated random number by using the personal identification code or a key based on the personal identification code as an encryption key;

10 a code conversion module for converting the received personal identification code by using a predetermined function; and

a print data encryption module for encrypting print data by using the random number as an encryption key.

18. A computer-readable storage medium which stores a computer program for causing a computer to execute a print control method, said computer program comprising:

20 a reception module for receiving an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;

25 a code reception module for receiving a second personal identification code input by a user;

a code conversion module for converting the

received second personal identification code by using  
a predetermined function;

5 a judgment module for judging whether or not  
the converted first personal identification code is  
the same as the converted second personal  
identification code;

10 a random number decryption module for, in a  
case where it is judged that the converted first and  
second personal identification codes are the same,  
decrypting the encrypted random number by using the  
second personal identification code or a key based on  
the second personal identification code as a  
decryption key; and

15 a print data decryption module for, in the case  
where it is judged that the converted first and  
second personal identification codes are the same,  
decrypting the encrypted print data by using the  
decrypted random number as a decryption key.